Franchise Model, where 70% of subscriber requests are processed locally, this bandwidth can be reduced to a T1 or E1.

The cache engine also allows the ISP Franchise to implement specific content filtering rules to prevent access to unwanted material on the Internet.

The way a cache engine works is that every time a subscriber requests information from the Internet, the ensoBox™ will check to see if any of the requested information is already stored in the cache engine (which means it has been requested previously). If the cache engine does not contain the requested Internet data, or the data is no longer valid (expired), then it retrieves the data from the Internet and serves it back to the subscriber. However, the cache engine now stores that data and can serve it locally upon future requests for the same data until its validity expires.

Dial Access

Subscribers dial into the Access Node over the public telephone network using a modem and standard dial–up networking software on their computer. Prior to placing the call, the subscriber enters a valid userid/password into the dial-up networking window. When a subscriber dials the ensoBox™ telephone number, the call is routed to one of the modem ports on the Remote Access Server (if no port is available the subscriber will get a busy signal and will have to initiate the call again). The modem port accepts the call, dynamically assigns an IP address to the subscriber's computer, and forwards the userid/password to the RADIUS server. The userid/password is sent over the telephone network via PAP (Password Authentication Protocol). The RADIUS server compares the userid/password to a list of valid userid/password combinations on the LDAP server. If there is a match with the LDAP database, the RADIUS server accepts the call, sends authorization back to the subscriber's computer, and establishes a PPP (Point-to-Point Protocol) session between the ensoBox™ and the subscriber's computer. The RADIUS server tracks the length of the call for accounting purposes. If the userid/password is incorrect, the call is terminated and the subscriber must re-initiate a connection with the ensoBox™.

Figure 3 depicts the process for dialing into the ensoBox™.

The Access Node connects directly to the PSTN via eight (8), twelve (12), or sixteen (16) T-1 or E-1 circuits. The following standard Access Node configurations are available:

ensoBox™ Digital 1000 and Analog 1000 Series Properties	ensoBox™ Access Node T1 Digital 1000	ensoBox™ Access Node E1 Digital 1000	ensoBox™ Access Node P1 Analog 1000
Total number of users per ensoBox™ 1000 Access Node[7]	3840	4800	4800
Total Number of 56 kbps analog/64 kbps ISDN modem ports per ensoBox™ 1000 Node	192	240	240 (Analog Only)
Total Number of T1s/E1s per ensoBox™ 1000 Access Node	8	8	N/A

Table 1. ensoBox™ 1000 Series

ensoBox™ Digital 1500 and Analog 1500 Series Properties	ensoBox™ Access Node T1 Digital 1500	ensoBox™ Access Node E1 Digital 1500	ensoBox™ Access Node P1 Analog 1500
Total number of users per ensoBox™ 1500 Access Node[8]	5760	7200	7200
Total Number of 56 kbps analog/64 kbps ISDN modem ports per ensoBox™ 1500 Node	288	360	360 (Analog Only)
Total Number of T1s/E1s per ensoBox™ 1500 Access Node	12	12	N/A

Table 2. ensoBox™ 1500 Series

ensoBox™ Digital 2000 and Analog 2000 Series Properties	ensoBox™ Access Node T1 Digital 2000	ensoBox™ Access Node E1 Digital 2000	ensoBox™ Access Node P1 Analog 2000

[7] Assumes a 20:1 modem ratio and appropriate telecommunications connectivity is met.
[8] Assumes a 20:1 modem ratio and appropriate telecommunications connectivity is met.

Total number of users per ensoBox™ 2000 Access Node[9]	7680	9600	9600
Total number of 56 kbps analog/64 kbps ISDN modem ports per ensoBox™ 2000 Access Node	384	480	480 (Analog Only)
Total Number of T1s/E1s per ensoBox™ 2000 Access Node	16	16	N/A

Table 3. ensoBox™ 2000 Series

The Services Node

The Services Node offers a variety of services including:

1. Web Portal
2. Email
3. Chat
4. News
5. Web hosting
6. Anonymous FTP

The Services Node is designed with network uptime and efficiency in mind. Services are installed on six (6) application servers to protect against server failures. A load balancer (Cisco's CS-50 Content Smart Switch) is used to balance server-processing loads across all of the application servers and to reroute requests to a different server when one of the servers fails. The distribution of subscriber requests across multiple servers improves subscriber response times because the load balancer always routes requests to the server experiencing the least amount of processing load at that moment. This type of services architecture provides a high availability of services and a low latency for the subscriber.

Clustered Services Architecture (CSA)

The Services Node is powered by a Clustered Services Architecture (CSA). CSA defines a standard architecture for the Service Provider market. This approach integrates best of breed hardware and

[9] Assumes a 20:1 modem ratio and appropriate telecommunications connectivity is met.